AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-13 (canceled).

14. (New) A device for generating chlorine trifluoride comprising: a plasma reactor (100), plasma generating means (110, 120, 130, 150, 155, 160, 170, 180) via which a high-density plasma (105) can be generated in the interior of the plasma reactor (100), gas supply means (21, 25, 22, 26) via which a first gas and a second gas can be supplied to the plasma reactor (100), these gases reacting with one another under the influence of the high-density plasma (105) in the plasma reactor (100), forming chlorine trifluoride, and a gas outlet (20) via which the formed chlorine trifluoride can be removed from the plasma reactor (100).

15. (New) The device according to Claim 14, wherein the plasma generating means include a coil (110), an adaptation network (120), and a high-frequency generator (130).

16. (New) The device according to Claim 14, wherein the plasma generating means include a microwave hollow conductor (150), tuning elements (155), a magnetron (170), a circulator (160), and a hollow conductor terminating element (180).

17. (New) The device according to Claim 14, wherein the plasma reactor (100) includes a quartz tube or a hollow quartz body having a polished interior wall or a ceramic tube or a hollow ceramic body having a polished interior wall or being made of aluminum oxide.

18. (New) The device according to Claim 14, wherein the gas supply means (21, 22, 25, 26) include a first mass flow regulator (22) via which the quantity of the first gas, which is supplied to the plasma reactor (100), is adjustable, and the gas supply means (21, 22, 25, 26) include a second mass flow regulator (26) via which the quantity of the second gas, which is supplied to the plasma reactor (100), is adjustable.

19. (New) A system for etching semiconductor substrates, comprising: the device (6) according to Claim 14, a process chamber (10), which is connected to the plasma reactor (100) via the gas outlet (20), being assigned to it, the semiconductor substrate (30) being situated in the process chamber (10) and being exposed to the gaseous chlorine trifluoride generated by the device (6) for generating chlorine trifluoride.

20. (New) A method for generating chlorine trifluoride, comprising: generating a high-density plasma (105) in a plasma reactor (100), and supplying to the plasma reactor (100) a first gas and a second gas, which react with one another under the influence of the high-density plasma (105) in the plasma reactor (100), forming chlorine trifluoride.

21. (New) The method according to Claim 20, wherein the high-density plasma (105) is generated using inductive high-frequency excitation or microwave excitation.

22. (New) The method according to Claim 20, wherein a gas which includes Cl_2 or HCl is used as the first gas, and a gas which includes NF_3, F_2, SF_6 is used as the second gas.

23. (New) The method according to Claim 20, wherein oxygen as an additional gas is supplied to the plasma reactor (100) or to a process chamber (10) downstream from the plasma reactor (100).

24. (New) The method according to Claim 20, wherein the generated chlorine trifluoride is separated from hydrogen fluoride and other gas components, using a filter downstream from the plasma reactor (100).

25. (New) The method according to Claim 20, wherein the first gas and the second gas are supplied to the plasma reactor (100) in such a way that fluoride atoms and chlorine atoms, in the form of radicals or reactive species, are present in the high-density plasma (105) at a 3:1 ratio.

26. (New) The method according to Claim 20, wherein the high-density plasma (105) is generated having a density in radicals or reactive species of at least 10^{11} particles per cm^3, in particular at least 10^{12} particles per cm^3.